

REMARKS

The above amendments and following remarks are responsive to the points raised in the January 24, 2005 non-final Office Action. Upon entry of this Amendment, Claims 1-7 will have been amended and Claims 1-7 will be pending. No new matter has been introduced. Entry and reconsideration are respectfully requested.

Response to Objection to the Specification

The specification has been objected to on the basis that (1) the Abstract includes legal language, (2) “‘drawing’ should be ‘drawings’” in the last line on Page 5, and (3) reference numeral “3”, on Page 6, Line 21, should be “4”.

Applicant has amended the Abstract and the specification to obviate the Examiner’s objections.

Accordingly, the objection to the specification is now moot and should be withdrawn.

Response to Objection to the Drawings

The drawings have been objected to on the basis that (1) the drawings do not show the “filtering (means) and members for feeding the material to be processed”, as recited in claim 1, and (2) “[t]he leader of reference no. ‘31’ in figure 2 should refer to the axis, as explained in the specification.”

Applicant has amended Claim 1 to recite elements shown in the drawings, and amended Figure 2 by correcting the leader for reference numeral 31.

Accordingly, the objection to the drawings is now moot and should be withdrawn.

Response to Objection to the Claims

Claims 1 and 7 have been objected to on the basis that (1) reference numeral 11 in Claim 1, Line 12, should be 15, (2) reference numerals 15 and 31 in Claim 7 are incorrect and should be deleted or changed to coincide with the specification, and (3) the Claim 1 language of “the filtering product, i.e., the filtered material’ is redundant and verbose.”

Applicant has amended Claims 1 and 7 to obviate this objection.

Accordingly, the objection to the claims is now moot and should be withdrawn.

Response to Rejection under 35 U.S.C. § 112, Second Paragraph

Claims 1-7 have been rejected under 35 U.S.C. § 112, second paragraph, on the basis that these claims are “indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.”

Applicant has amended Claims 1 and 7 to obviate this rejection.

Accordingly, the rejection under 35 U.S.C. § 112, second paragraph, is now moot and should be withdrawn.

Response to Rejections under 35 U.S.C. § 103(a)

Claims 1, 2, and 7 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over US Patent 5,362,403 to Dosoudil in view of US Patent 3,334,861 to Westbrook. Claims 3-6 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Dosoudil in view of Westbrook as applied to above and in further view of US Patent 5,992,689 to Johanson.

Applicant respectfully traverse these rejections.

The Examiner acknowledges that the primary reference of Dosoudil does not teach each

feature of the subject matter recited by Claims 1, 2, and 7 and attempts to rely on the secondary reference of Westbrook to remedy the deficiencies of Dosoudil. More specifically, the Examiner states that:

Dosoudil does not teach his adjusting means to include two concentric adjusting elements movable relative to one another.”

Thereafter, the Examiner states:

“[h]owever, such is taught by Westbrook, where one of the elements are rotatable [as in claim 2].”

From here, the Examiner concludes that:

[i]t is considered that it would have been obvious to one of ordinary skill in the art at the time of the invention to have the adjusting means/actuator of Dosoudil to be replaced with the adjusting element/actuator of Westbrook since he teaches the benefit of uniformly varying the rate of flow through the valve (col. 1). This would improve the control of material level in the discharge conduit of Dosoudil.”

Contrary to the Examiner’s comments, Applicant respectfully submits that neither Dosoudil nor Westbrook, either alone or in combination, teach, suggest, or otherwise render obvious, the subject matter recited in Claims 1, 2, and 7. The filtration apparatus disclosed by Dosoudil discharges filter cake by opening the sluice when the filter cake level in the discharge shaft reaches the upper scanning electrode. In this filter cake discharge phase, the filter cake level in the discharge shaft goes down, and the sluice is closed when the filter cake level reaches the lower scanning electrode. The filter cake level in the discharge shaft will rise when the filtration apparatus produces more filter cake. A new filter cake discharge phase is started when the filter cake level in the discharge shaft reaches the upper scanning electrode. As such, the filter cake level will vary between these two scanning electrodes and material is discharged from the filtration apparatus in batches. This is not a problem if filter cakes are dropping directly to a truck or pile. If further processing requires even material flow, then extra storage bins, or similar

storage, are needed. Also, in cases where the filter cake must be conveyed further, all conveyors must be sized for this instantaneous maximum flow.

The secondary reference of Westbrook discloses a variable rate of flow shut off valve. Adjusting elements 33 and 36 have spiral slots and they are rotated with respect to each other by a worm and worm gear that makes this construction quite complicated. Material flowing through the Westbrook valve must flow through narrow channels and therefore this valve is suitable for easily flowing non-abrasive fluids. No where is it seen within the secondary reference of Westbrook, where Westbrook teaches, suggests, or would have motivated one of ordinary skill in the art, at the time the invention was made, to modify Dosoudil as advanced by the Examiner. As such, the subject matter recited in Claims 3-6 are distinguished over the teachings of Dosoudil, Westbrook, and Johanson, either alone or in combination.

According to the present invention, cake level in the discharge shaft is kept constantly at the same level. This means that the control system continuously adjusts the valve opening to discharge as much cake as is produced by the filter in the pressurized space. This operation principle is advantageous for further cake processing because small continuous flow is easier to handle than larger amounts of cake at certain intervals, such as, for example, in the Dosoudil apparatus. Filter cake produced by this type of filter consists of small solid particles containing typically 5-15 weight percentage liquid, e.g., metal concentrates. Therefore, filter cakes do not flow easily and they have a tendency to bridging. Hence, the valve structure according to the invention has only a few large openings to minimize the bridging effect. Narrow opening, as taught by Westbrook, would easily be blocked by cake material. One additional drawback of narrow openings is excessive wear, which is avoided by the construction according to the present invention. A valve of the type disclosed by Westbrook is also quite complicated when compared

to the structure of the present invention. According to the present invention, one simple adjusting element is rotated with respect to another stationary element by a hydraulic cylinder, or other similar base components. The Westbrook valve is a general adjusting valve without any connection to control of solid particle flow.

The Examiner acknowledges that the combination of Dosoudil and Westbrook fails to teach each feature of the subject matter recited in Claims 3-6 and attempts to rely on the tertiary teaching of Johanson to remedy the deficiencies of the combination of Dosoudil and Westbrook. Notwithstanding the admitted differences, Claims 3-6, which ultimately depend on Claim 1, are distinguished over Dosoudil, Westbrook, and Johanson, either alone or in combination, for at least the same reasons as discussed above with respect to Claim 1. No where is it seen within the tertiary reference of Johanson, where Johanson teaches, suggests, or would have motivated one of ordinary skill in the art, at the time the invention was made, to further modify Dosoudil as advanced by the Examiner. As such, the subject matter recited in Claims 3-6 are distinguished over the teachings of Dosoudil, Westbrook, and Johanson, either alone or in combination.

Accordingly, the rejections under 35 U.S.C. § 103(a) should be withdrawn

CONCLUSION:

Applicant respectfully submits that Claims 1-7 are in condition for allowance and a notice to that effect is earnestly solicited.

AUTHORIZATION

The Commissioner is hereby authorized to charge any fees which may be required for filing this response to restriction requirement to Deposit Account No. 13-4503, Order No. 6009-4591.

Respectfully submitted,
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